

**REMARKS:**

**REMARKS REGARDING CLAIMS:**

Claims 1-8 are currently pending in the application.

**IN RESPONSE TO THE OFFICE ACTION:**

**REJECTION UNDER 35 U.S.C. § 112:**

The Office Action indicated rejection of claims 1-8 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. It is the Examiner's position that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention. In particular, the Examiner argues that the limitation "said fixed planet carrier being stationarily arranged relative to a casing of said transmission" is not supported or described in the disclosure."

In order to advance the examination of the application, the applicant wishes to draw the Examiner's attention to portions of the specification, as originally filed, which provide support for the above mentioned limitation. In the Background of the Invention, at paragraph 0002, the specification recites "the main transmission is often of the planetary gear type with fixed planet carrier (so-called "star gear" type)". As can be seen from this citation, the fixed planet carrier is known as a "star gear" type, and is well known as such in the art. Furthermore, the application on page 3, paragraph 0006, recites that "the invention consists of a gas turbine arrangement comprising a transmission of the planetary gear type having fixed planet carrier and an arrangement for driving one or more auxiliary units." This wording, "fixed planet carrier", also refers to a "star gear" as described in the Background of the Invention. On page 6, paragraph 0015, it is further recited that "Fig. 2 shows a simplified diagram of a main transmission of a planetary gear type with a fixed planet carrier in which the invention has been applied in the preferred embodiment." With the benefit of such portions describing the invention, one of skill in the art would understand that the invention comprises a "fixed planet carrier" as in the known "star gear" type and is therefore properly and sufficiently described in the application as originally filed.

Planetary transmissions with fixed planet carriers are well known in the art and are commonly referred to as “star gear” systems.<sup>1</sup> A search amongst patents and other publications confirms that star gears are in fact well known in the art. For Example, US 6,223,616 to **Sheridan** discusses the “star system” in the background of the invention at Column 1, lines 30-39:

A star system is similar to the above described planetary system except that the gear carrier is mechanically grounded, the ring gear is rotatable and the output shaft extends from the ring gear. Because the carrier is grounded, the “planet” gears cannot orbit the sun and therefore are referred to as star gears. In operation, the input shaft rotatably drives the sun gear, compelling each star gear to rotate about its own axis. The rotary motion of the star gears turns the ring gear, and hence the output shaft, in a direction opposite that of the input shaft.

As can be seen, the “Star System” refers to an arrangement where the carrier is fixed with respect to the casing of the transmission, and therefore the planet gears do not revolve around a sun gear or a central axis. Instead, the planet gears rotate around their own axes, remaining stationary or fixed in space. An additional description of a “star gear” system is provided in **Mitrovic** (US 2005/0026745), in paragraph 0002:

output. In star gear trains, the sun gear provides the input. However, the planetary carrier is held stationary, and the outer ring gear provides the rotary output in a direction opposite that of the input sun gear.

As described, in star gear systems, the planet carrier is held stationary, wherein the planet gears do not revolve around the sun gear, or central axis, but instead remain stationarily fixed and rotate around their own axes.

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<sup>1</sup> The definition of, and differentiation between the planetary gear, star gear and solar gear is explained in Exhibit A where it is defined that “[w]hen the carrier is fixed and the sun and ring are input/output members the unit is called a 'star' gear.”

These citations are exemplary of what was well known to those skilled in the art at the time of the filing of the present application. Therefore, the claims of the present application, in light of the original specification, which described the fixed planet gear carrier and “star gear” type transmissions, were fully supported at the time of filing and would reasonably convey to one of ordinary skill in the art that the inventor was in possession of the invention at the time the application was filed.

REJECTION UNDER 35 U.S.C. § 102(b):

Claims 1, 3-4, 7 and 8 were rejected under 35 U.S.C. §102(b) as being rendered unpatentable by **Stockton** ('016). In particular, the Examiner argues that **Stockton** discloses a gas turbine arrangement having a planetary transmission (206) with a fixed carrier (fixed to planet shaft 216), an arrangement for driving an auxiliary unit (226) wherein the auxiliary is operatively connected to the planet wheel shaft through gear (222), and therefore anticipates the current claims.

However, anticipation under §102 can be found only if a reference shows exactly what is claimed. The identical invention must be shown in as complete detail as is contained in the patent claim. Therefore, it is Applicant's position that **Stockton** does not disclose the identical invention as claimed and therefore the present claims are not anticipated.

Specifically, **Stockton** does not disclose a fixed planet carrier such as “star gear” type in the transmission. As discussed in **Stockton**, Column 4, lines 8-54, the starter alternator unit is driven in one direction, and then after the gas turbine is operating, the direction of the torque is reversed.

When the turbine powerplant is operating, as shown in Column 4, lines 50-54, the sun gear drives the carrier, which in turn drives the shaft 202 to produce energy.

**running clutch 218 freewheels. The overrunning brake 212 anchors the ring gear 208 under these conditions, and a speed reduction occurs as the sun gear 214 drives the carrier 204. Carrier 204, in turn drives armature 202 for the unit 200 which now acts as an alternator or voltage generator.**

As the cited portion shows, the ring gear is braked so that it is no longer moving, and furthermore, it is the sun gear driving the carrier. Therefore, motion is imparted to the carrier so that it rotates around the sun gear, moving with respect to the stationary ring gear, thereby driving the armature. Therefore, as this excerpt demonstrates, the carrier is not stationary, and therefore cannot be characterized as a star gear type transmission system.

Furthermore, **Stockton** does not disclose an auxiliary unit operatively connected to a planet wheel shaft. As discussed, the system shown in Fig. 3 operates in one direction during startup, and in the reverse direction during operation. The shaft 216 can be characterized as an output shaft during startup. Furthermore, contrary to the Examiner's statement that the carrier is fixed to the shaft 216, the shaft 216 is in fact connected to the sun gear, which in turn is connected to the carrier 204. Therefore the shaft 216 establishes a one way driving connection with the carrier by means of the sun gear, as described in Column 4, lines 25-28:

**Sun gear 214 for the gearing 206 is connected to the output element 216 of the gear unit or clutch 218 establishes a one-way driving connection between the carrier 204 and the output element 216. Output element 216 forms a drive pinion**

Therefore, 216 is an output shaft, and not a planetary wheel shaft. It is the output shaft 216 which drives the gears 222, which in turn drives the systems 226, and not a planetary wheel shaft. A planet wheel shaft, in order to act as a planet wheel shaft, would be required to have the planet pinions 210 seated thereon. However, **Stockton** does not discuss, implicitly or explicitly, a planetary wheel shaft, or any shaft related to pinions 210. Furthermore, no auxiliary units associated with such a shaft or pinions 210 are disclosed. Any auxiliary units are discussed in connection with output shaft 216. **Stockton** seems to only disclose that planet pinions 210 are carried by the carrier 204, but makes no mention of an associated shaft with such pinions.

Therefore **Stockton** does not identically disclose a fixed planet carrier, nor an auxiliary unit operatively connected with a planet wheel shaft as claimed in the present invention. Such embodiments of the present invention can be seen in Fig. 2 where the auxiliary unit 12 is connected to a planet wheel shaft 10 and planet wheels 4 and 5 are seated thereon. Furthermore, such shaft and wheels are fixed with respect to the casing of the transmission.

The Examiner also rejected claims 1-3, 6-8 under 35 USC §102(b) as being rendered unpatentable by **Kronogard** ('375). In particular, the Examiner argued that **Kronogard** discloses a gas turbine transmission plant having a planetary transmission system with a fixed carrier (24 fixed to shaft 26), as well as an arrangement for driving at least one auxiliary unit (22), wherein the unit is operatively connected to the shaft 26 of the planet carrier, and therefore anticipates the current claims.

However, it is applicant's position that **Kronogard** does not identically disclose the current invention for reasons similar to those discussed with respect to **Stockton**. First, **Kronogard** does not disclose a fixed planet carrier. **Kronogard** discloses a planet carrier 24, which supports planet wheels 25, and is connected to the input shaft 26. Furthermore, the carrier's planet wheels interact with the ring wheel, which in turn drives the output shaft 21. This is accomplished by motion of the planet carrier and ring wheel as shown in column 3, lines 33-36:

**between gear wheel 28 and ring wheel 30 for varying the output speed as a result of the difference between the speed of the planet carrier 24 and ring wheel 30.**

As discussed, the output speed is varied due to the difference in speed of the planet carrier and ring wheel. Because the planet carrier is described as having speed, it cannot be a "star gear" type transmission system with stationarily fixed planet carrier, but is instead required to have motion.

Additionally, the auxiliary unit is not operatively connected to a planet wheel shaft. **Kronogard** discloses a planet carrier 24, having planet wheels 25, where the carrier 24 is connected to the input shaft 26 as shown in Fig. 1 and discussed in column 3, lines 19-21:

**The planetary gearing comprises a planet carrier 24 supporting a set of stepped planet wheels 25, and connected to the input shaft 26 of the gearing. A gear wheel**



As described, the input shaft 26 is not a planet wheel shaft, but is instead an input shaft. The planet wheel shaft does not seem to be described in **Kronogard**, however, from Fig. 1, it would be seen between stepped wheels 25a and 25b, and connected to the planet carrier 24. Stepped wheels 25a and 25b would be seated thereon. As seen in the figure, no auxiliary unit is connected to a planet wheel shaft, but is instead connected to input shaft 26.

The current invention on the other hand is a “star gear” type transmission where the planet carrier is stationary. Furthermore, as seen in Fig. 2 of the present application, the auxiliary unit is connected to the planet wheel shaft 10, and not the input shaft 2. Therefore, because the identical invention has not been disclosed by **Kronogard**, the Applicant respectfully requests that the §102 rejection be withdrawn.

The Examiner also rejected claims 1, 2 and 6-8 under 25 USC §102(b) as being unpatentable by **Bagenskii** (SU 1815368A1). Similar to the disclosures of **Stockton** and **Kronogard**, **Bagenskii** does not disclose a fixed planet carrier. **Bagenskii** discloses that the speed reduction between the gas turbine and the generator occur through a planetary gear box to an output shaft. In this case, the planetary gear box comprises a planetary gear wheel carrier that rotates to drive the output shaft. Because of this rotation, the carrier can not be described as a fixed planet carrier, as required by the claims of the current invention.

Moreover, as with **Stockton** and **Kronogard**, the auxiliary unit is connected to the output shaft and not the planet wheel shaft as claimed in the current invention. **Bagenskii** does not identically disclose the current invention, and therefore applicant respectfully requests that the §102 rejection be withdrawn.

In light of the foregoing arguments, the applicant respectfully requests that the §102 rejections with regard to **Stockton**, **Kronogard** and **Bagenskii** be withdrawn.

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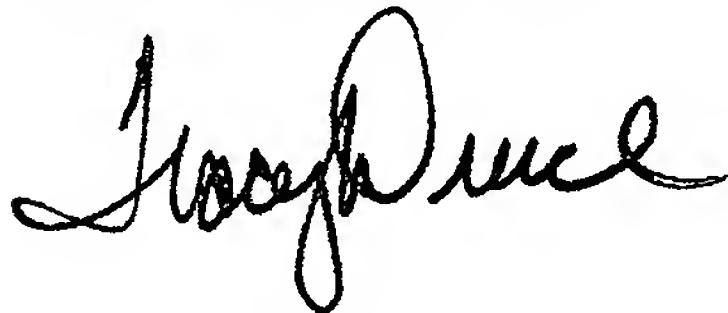
REJECTION UNDER 35 U.S.C. § 103(a):

Claims 3-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over the **Stockton, Kronogard and Bagenskii** in view of **Howes et al.** ('406). For reasons previously discussed, **Stockton, Kronogard and Bagenskii** fail to render the current claims obvious. Furthermore **Howes et al.**'s disclosure concerning an oil pump does nothing to close the gap between the cited references and the current invention. Therefore, a prima facie case of obviousness cannot be established, and so applicant respectfully requests the withdrawal of the §103(a) rejections.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, Order No. 07589.0139.PCUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Tracy Druce", with a stylized, cursive script.

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